# SPEC® CINT2006 Result

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## IBM Corporation

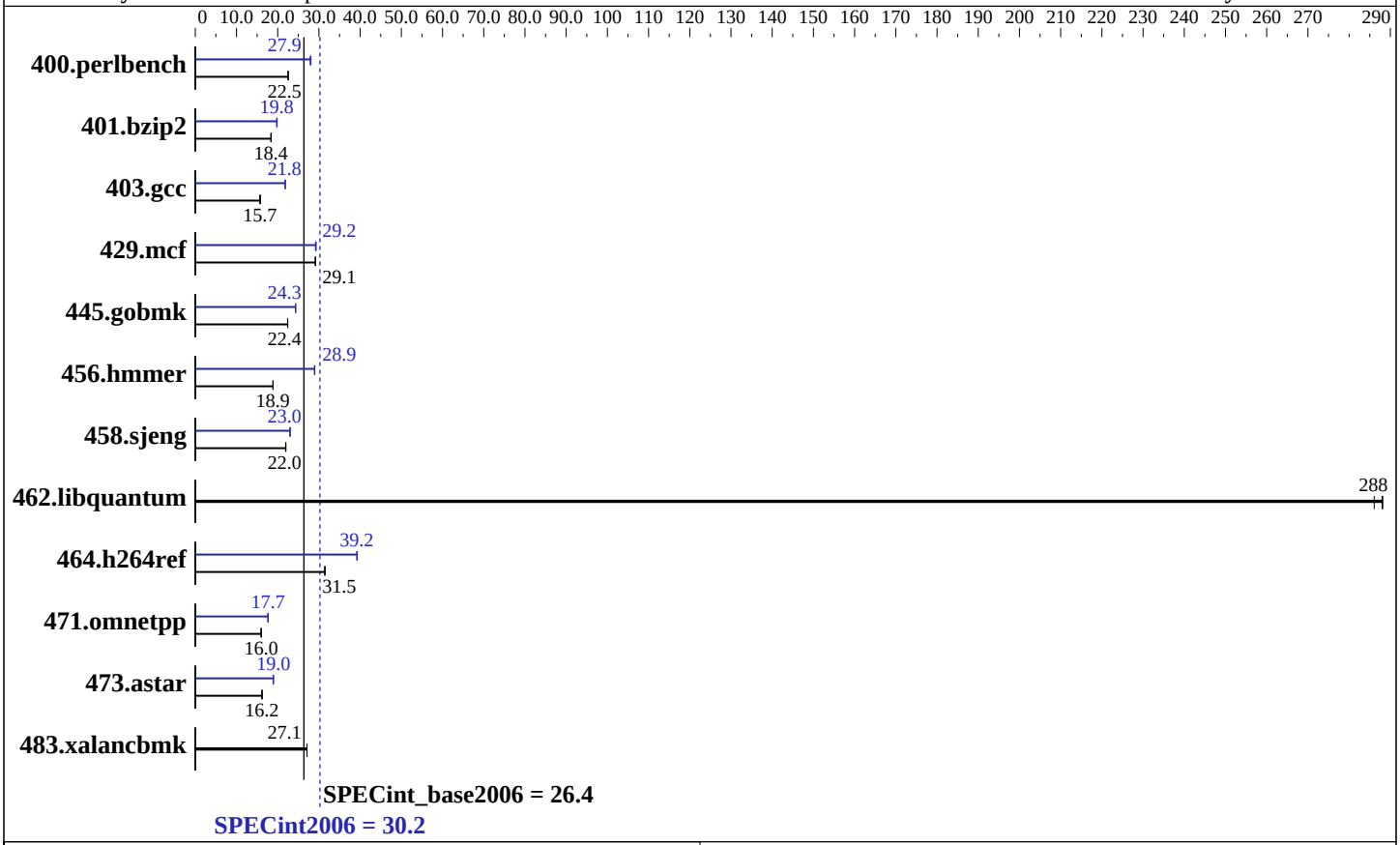
## IBM BladeCenter HS21 (Intel Xeon X5470)

SPECint®2006 = 30.2

SPECint_base2006 = 26.4

**CPU2006 license:** 11
**Test sponsor:** IBM Corporation
**Tested by:** IBM Corporation

**Test date:** Sep-2008
**Hardware Availability:** Oct-2008
**Software Availability:** Nov-2008




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5470 |
| CPU Characteristics: | 1333MHz system bus |
| CPU MHz: | 3333 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 16 GB (8 x 2 GB DDR2-5300F ECC) |
| Disk Subsystem: | 1 x 36 GB SAS, 10000 RPM |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | Microquill SmartHeap V8.1 Binutils 2.18.50.0.7.20080502 |

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## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 433 | 22.6 | 435 | 22.5 | **433** | **22.5** | **350** | **27.9** | 348 | 28.1 | 350 | 27.9 |
| 401.bzip2 | 523 | 18.4 | **525** | **18.4** | 526 | 18.3 | **487** | **19.8** | 489 | 19.7 | 486 | 19.9 |
| 403.gcc | 514 | 15.7 | 509 | 15.8 | **513** | **15.7** | **369** | **21.8** | 369 | 21.8 | 369 | 21.8 |
| 429.mcf | 313 | 29.1 | 313 | 29.1 | **313** | **29.1** | 311 | 29.3 | 313 | 29.2 | **312** | **29.2** |
| 445.gobmk | 468 | 22.4 | **468** | **22.4** | 468 | 22.4 | 431 | 24.3 | **431** | **24.3** | 431 | 24.3 |
| 456.hmmer | 495 | 18.9 | **495** | **18.9** | 495 | 18.9 | **323** | **28.9** | 323 | 28.9 | 322 | 29.0 |
| 458.sjeng | **551** | **22.0** | 552 | 21.9 | 551 | 22.0 | 527 | 23.0 | 526 | 23.0 | **526** | **23.0** |
| 462.libquantum | 72.4 | 286 | **71.9** | **288** | 71.9 | 288 | 72.4 | 286 | **71.9** | **288** | 71.9 | 288 |
| 464.h264ref | 705 | 31.4 | 703 | 31.5 | **703** | **31.5** | **564** | **39.2** | 565 | 39.2 | 563 | 39.3 |
| 471.omnetpp | **391** | **16.0** | 390 | 16.0 | 392 | 15.9 | **354** | **17.7** | 355 | 17.6 | 353 | 17.7 |
| 473.astar | **434** | **16.2** | 434 | 16.2 | 433 | 16.2 | 372 | 18.9 | **370** | **19.0** | 370 | 19.0 |
| 483.xalancbmk | 254 | 27.1 | **255** | **27.1** | 255 | 27.1 | 254 | 27.1 | **255** | **27.1** | 255 | 27.1 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

```
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
Hardware Prefetch Enabled, Adjacent Sector Prefetch Enabled
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
```

## Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

## Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Base Optimization Flags

C benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel
-par-runtime-control -opt-prefetch
```

C++ benchmarks:
```
-xSSE4.1 -ipo -O3 -no-prec-div -opt-prefetch -Wl,-z,muldefs
-L/spec/cpu2006.1.1/lib -lsmartheap
```

## Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

## Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

401.bzip2:
```
/opt/intel/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include
```

456.hmmer:
```
/opt/intel/Compiler/11.0/042/bin/intel64/icc
-L/opt/intel/Compiler/11.0/042/ipp/em64t/lib
-I/opt/intel/Compiler/11.0/042/ipp/em64t/include
```

C++ benchmarks:
```
icpc
```

## Peak Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
401.bzip2: `-DSPEC_CPU_LP64`
456.hmmer: `-DSPEC_CPU_LP64`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Peak Optimization Flags

C benchmarks:

Continued on next page

## Peak Optimization Flags (Continued)

400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -ansi-alias -opt-prefetch

401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32 -opt-prefetch -ansi-alias

403.gcc: -xSSE4.1 -ipo -O3 -no-prec-div -static -inline-calloc -opt-malloc-options=3

429.mcf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -O2 -ipo -no-prec-div -ansi-alias

456.hmmer: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -auto-ilp32

458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4

462.libquantum: basepeak = yes

464.h264ref: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias

C++ benchmarks:

471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

473.astar: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -ansi-alias -opt-ra-region-strategy=routine -Wl,-z,muldefs -L/spec/cpu2006.1.1/lib -lsmartheap

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.html
http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.11.html

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.xml
http://www.spec.org/cpu2006/flags/Intel-ic11.0-int-linux64-revA.20090713.11.xml


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